

REMARKS

Claims 1-2, 4-39, and 47-68 are presently pending in the application. Applicant has amended Claims 1, 8, 12, 34, and 47 to more clearly describe that which was previously claimed, and added Claims 63-68 to claim additional subject matter described in Applicant's specification. Support for added Claims 63-66 and the amendments to Claims 1, 8, 12, 19, 28, 34, 47 is included in at least paragraphs 58, 62, 82, 112, 128, 134, and 162 of Applicant's specification. Applicant has also canceled Claim 3. No new matter has been added. Applicant respectfully requests issuance of a notice of allowance for this application in view of the amendments to the claims and the following remarks.

The 35 U.S.C. §103(a) rejections

Claims 1-6, 34-39, 47-50 and 52-62 stand rejected pursuant to 35 U.S.C. §103(a) as being unpatentable over "Analysis and Evaluation of the Two-Switch Three-Level Boost Rectifier" 2001, by Peter Barbosa et al. (hereinafter "Barbosa") and "Parasitic Ringing and Design Issues of High Power Interleaved Boost Converters" 2002 by X. Huang et al. (hereinafter "Huang") and U.S. Patent No. 5,870,294 to Cyr (hereinafter "Cyr"). In addition, Claims 7-11 and 13-18 stand rejected pursuant to 35 U.S.C. §103(a) as being unpatentable over the combination of Barbosa, Huang, Cyr and U.S. Patent No. 5,923,152 to Guerrero (hereinafter "Guerrero"). Also, Claims 12, 19-33 and 51 stand rejected pursuant to 35 U.S.C. §103(a) as being unpatentable over the combination of Barbosa, Huang, Cyr and "Dual Output Three-Level Boost Power Factor Correction Converter with Unbalanced Loads" 1996 by J.R. Pinheiro et al. (hereinafter "Pinheiro"). Applicant respectfully traverses these rejections because each and every limitation in the currently pending Claims is not taught or suggested by the cited references either alone or in combination.

Amended Claim 1 describes that the boost voltage is divided by a factor of at least four with the first, second, third, fourth sub-circuits, and that the power factor correction controller is configured to control the first and second boost converters with pulse width modulation and

series interleave operation with the factor of at least four as a function of the boost voltage. None of the cited references teach or suggest such limitations. In fact, the office action mailed October 19, 2007 does not does not assert that any of Barbosa, Huang or Cyr meet the limitations described in Claim 1 related to interleave, but rather simply disregards these limitations completely. Accordingly, it is respectfully requested that the rejection of Claim 1 be withdrawn as improper. (See MPEP 707 and 37 CFR §1.104(b) and 37 CFR §1.104(c))

Amended Claim 8 describes a power factor correction controller coupled with the at least four boost switches, the power factor correction controller configured to direct the at least four boost switches independently with series interleave operation of a factor of at least four to provide a DC boost voltage from the input voltage. None of the cited prior art teaches or suggests series interleave operation of a factor of at least four, as described in Claim 8. Moreover, limitations related to interleave have been complete disregarded in the office action mailed October 19, 2007. Thus, Applicant respectfully asserts that the rejection of Claim 8 is improper and should be withdrawn.

Claim 19 describes an output stage power converter coupled with the first and second boost converters, where the output stage power converter is configured to balance the boost voltage supplied with the first and second boost converters. On page 3 of the office action mailed October 19, 2007 it was asserted that "Pinheiro et al teaches that the use of boost power factor correction configured to balance the boost voltage is well known in the art." Applicant respectfully traverses that the description in Pinheiro anticipates or renders obvious the invention described in Claim 19 because Pinheiro fails to describe both an input stage power converter and an output stage power converter, and thus cannot possibly describe an output stage power converter configured to balance a boost voltage supplied with an input stage power converter. To the contrary, Pinheiro describes an input stage that varies operating regions of switches (S1 and S2) to both boost an input voltage to an output voltage, and regulate the output voltage (page 2). Thus, the modification of Barbosa with Pinheiro would simply provide control of Barbosa's switches S1 and S2 as also described on page 1660 left column of Barbosa.

Claim 28 describes an output stage power converter coupled with the input stage power converter, where the output stage power converter includes a first output converter coupled with the first pair of boost switches and a second output converter coupled with the second pair of boost switches, where the output stage power converter is configured to substantially balance the portion of the DC boost voltage provided by each of the first and the second pair of boost switches. On page 3 of the office action, it was asserted that "Pineiro et al. teaches that the use of boost power factor correction configured to balance the boost voltage is well known in the art." Applicant respectfully traverses that the description in Pineiro anticipates or renders obvious the invention described in Claim 28 because Pineiro fails to describe both an input stage power converter and an output stage power converter, and thus cannot possibly describe an output stage power converter configured to substantially balance the portion of the DC boost voltage provided by each of the first and second pair of boost switches included in an input stage as described in Claim 28. To the contrary, Pineiro describes an input stage that varies operating regions of switches (S1 and S2) to both boost an input voltage to an output voltage and also regulate the output voltage. (page 2) Thus, modification of Barbosa with Pineiro simply results in control of Barbosa's switches S1 and S2 to regulate the output voltage as is similarly described on page 1660 left column of Barbosa.

Amended Claim 34 describes a power factor correction controller coupled with the first and second boost switches and the first and second boost sub-switches, where the first and second boost switches and the first and second boost sub-switches are switchable with pulse width modulation to develop at least a portion of a DC boost voltage on the boost capacitor from an unrectified AC input voltage supplyable from the AC power source, wherein the DC boost voltage is greater in magnitude than a peak magnitude of the AC input voltage. None of the cited references teach or suggest development of at least a portion of a DC boost voltage from an unrectified AC input voltage. To the contrary, Barbosa describes a rectifier (Figs. 1 and 3), Huang describes a DC input voltage (page 30 left column), and Cyr describes a rectifier (16)

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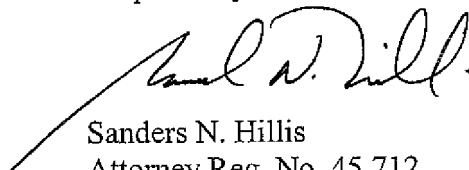
(Col. 3 lines 1-5). Thus, the cited references teach away from the invention described in Claim 34.

The method of amended Claim 47 describes switching a switch mode converter included in the output stage converter with a predetermined duty cycle to substantially balance conversion of the input voltage to the first DC voltage among the at least four boost switches. None of the cited references describe an output stage converter with a predetermined duty cycle as described in Claim 47.

For at least the foregoing reasons, each and every limitation described in independent Claims 1, 19, 28, 34 and 47, and the Claims dependent therefrom, are not described by the cited references either alone, or in combination. Thus, Applicant respectfully requests withdrawal of the 35 U.S.C. § 103(a) rejections of Claims 1-2, 4-39, and 47-62.

This application is now in condition for allowance, which is respectfully requested. Should the Examiner deem a telephone conference to be beneficial in expediting examination and/or allowance of this application, the Examiner is invited to call the undersigned attorney at the telephone number listed below.

Respectfully submitted,



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